

*Application No. 10/633,463*

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:
  - a weigh hopper;
  - a storage bin including an auger mounted thereto, said auger for metering a desired amount of a micro-ingredient into said weigh hopper;
  - a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;
  - a transport line for delivering the micro-ingredient to the feed ration;
  - means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;
  - an eductor mounted in line with said transport line;
  - means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredient through said means for introducing and through said eductor into said transport line; and
  - a discharge device having an upstream end attached to a discharge end of said transport line, said discharge device further including a housing body, an inner tube placed within said housing body, said inner tube communicating with said discharge end for receiving micro-ingredients moving through said transport line, wherein a gap defines an open space between an

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outer surface of said inner tube and an inner surface of said housing body, said inner tube and said body each having a downstream end terminating substantially coterminous with one another, said inner tube and said body each extending continuously without openings between said upstream end and said downstream end, and wherein a flow of liquid is provided through said housing body through said gap whereby as said micro-ingredients exit said discharged device, said liquid concentrically surrounds said micro-ingredients.

2. (Original) A system, as claimed in Claim 1, wherein:

said bin includes a plurality of bins each having a corresponding auger for metering separate micro-ingredients into said weight hopper.

3. (Original) A system, as claimed in Claim 1, wherein:

said weigh hopper includes a plurality of weigh hoppers;  
said bin includes a plurality of bins each having a corresponding auger for metering separate micro-ingredients from each of said bins into corresponding weigh hoppers of said plurality of weigh hoppers; and

said means for introducing includes a plurality of means for introducing enabling the separate micro-ingredients to be introduced into the transport line.

4. (Original) A system, as claimed in Claim 3, wherein:

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said scale includes a plurality of scales, one scale of said plurality of scales being mounted to each weigh hopper of said plurality of weigh hoppers for separately determining the weight of micro-ingredients in each of said weigh hoppers.

5. (Original) A system, as claimed in Claim 3, wherein:

said transport line includes a plurality of transport lines for separately conveying the micro-ingredients, said means for supplying pressurized air communicating with each of said plurality of transport lines thereby causing transport of the micro-ingredients through the plurality of transport lines.

6. (Original) A system, as claimed in Claim 5, wherein:

said means for supplying pressurized air includes a plurality of means for supplying pressurized air so that each transport line of said plurality of transport lines has a dedicated means for supplying pressurized air therethrough.

7-22. (Canceled)

23. (Previously Added) A system, as claimed in Claim 1, wherein:

said discharge device further includes a flange connected to the downstream end of said inner tube wherein said flange acts as a nozzle to accelerate liquid flowing in said gap between said inner tube and said housing body.

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24. (Withdrawn) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired amount of a micro-ingredient into said weigh hopper;

a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

an eductor mounted in line with said transport line;

means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredient through said means for introducing and through said eductor into said transport line; and

a discharge device attached to a discharge end of said transport line, said discharge device including a housing body, an inner tube placed within said housing body, said inner tube communicating with said discharge end for receiving micro-ingredients moving through said transport line, wherein a gap defines an open space between an outer surface of said inner tube and an inner surface of said housing body, said inner tube has a downstream end, and said

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housing body has a downstream end extending beyond said downstream end of said inner tube to enable mixing of micro-ingredients and liquid.

25. (Withdrawn) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired amount of a micro-ingredient into said weigh hopper;

a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

an eductor mounted in line with said transport line;

means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredient through said means for introducing and through said eductor into said transport line;

a discharge device attached to a discharge end of said transport line, said discharge device including a housing body, an inner tube placed within said housing body, said inner tube communicating with said discharge end for receiving micro-ingredients moving through said

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transport line, wherein a gap defines an open space between an outer surface of said inner tube and an inner surface of said housing body; and

a mixing tube extension attached to a downstream end of said discharge device, said mixing tube extension thereby promoting mixing of the micro-ingredients and liquid.

26. (Withdrawn) A system, as claimed in Claim 25, wherein:

said mixing tube extension further includes a mixing plate placed transversely within said mixing tube extension thereby blocking at least some portion of an inside passageway of said mixing tube and promoting turbulent flow of the micro-ingredients and liquid for mixing.

27. (Withdrawn) A system for measuring, dispensing and pneumatically delivering micro-ingredients to a feed ration comprising:

a weigh hopper;

a storage bin including an auger mounted thereto, said auger for metering a desired amount of a micro-ingredient into said weigh hopper;

a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

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an eductor mounted in line with said transport line;  
means for supplying pressurized air through said eductor and through said transport line,  
wherein said eductor facilitates movement of the micro-ingredient through said means for  
introducing and through said eductor into said transport line; and  
a mixing manifold connected to a discharge end of said transport line for mixing a stream  
of liquid and the micro-ingredients passing therethrough, said mixing manifold including a  
housing, a first inlet port communicating with said housing and arranged substantially parallel to  
a longitudinal axis of said housing, a second inlet port communicating with said housing and  
arranged at an angle to said longitudinal axis, wherein the liquid is introduced through said  
second inlet port and said micro-ingredients are introduced through said first inlet ports for  
mixing of the micro-ingredients and liquid within the housing.

28. (Withdrawn) A system, as claimed in Claim 27, wherein:

said second inlet port includes a tapered downstream end disposed within said housing  
for accelerating flow of liquid therethrough.

29. (Withdrawn) A system for measuring, dispensing and pneumatically delivering  
micro-ingredients to a feed ration comprising:

a weigh hopper;  
a storage bin including an auger mounted thereto, said auger for metering a desired  
amount of a micro-ingredient into said weigh hopper;

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a scale mounted to said weigh hopper for determining the weight of the micro-ingredient metered into said weigh hopper from said auger, said auger being activated to meter the desired amount of the micro-ingredient based upon weight indicated by said scale;

a transport line for delivering the micro-ingredient to the feed ration;

means intermediate said weigh hopper and said transport line for introducing the micro-ingredient in the transport line;

an eductor mounted in line with said transport line;

means for supplying pressurized air through said eductor and through said transport line, wherein said eductor facilitates movement of the micro-ingredients through said means for introducing and through said eductor into said transport line;

a first discharge device attached to a discharged end of said transport line, said discharge device including a housing, a first inlet port for receiving a flow of the micro-ingredients from said transport line, a second inlet port communicating with a source of liquid for providing liquid to said housing and for mixing with the micro-ingredients; and

a second discharge device connected to a downstream end of said first discharge device, said second discharge device comprising at least one of a static mixer and an eductor.

30. (Withdrawn) A system, as claimed in Claim 29, wherein:

said static mixer includes a pattern of internal baffles mounted therein.

31. (Withdrawn) A system, as claimed in Claim 29, wherein:

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said eductor includes an interior tube disposed within said eductor for providing a supply of liquid into the eductor.

32. (New) A system, as claimed in Claim 1, wherein:

said discharge device further includes a mixing plate suspended transversely across a mixing tube extension connected to the downstream end of said housing body.